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(54) Container with inner bag for liquid

(57) A container structure comprises an outer container 1, eg a wooden wine cask, a water-tight bag, eg of aluminium foil, within the outer container, and a structure which provides a tight connection between the bag and a valve body 4 held on an end cover 6 of the container to provide an air-tight enclosure to facilitate filling and assembly, whilst maintaining freshness and quality of liquid held therein. The valve body has a pipe 41 at its rear which communicates with a bag opening via a connecting ring element 21, a valve 5 at the front communicating with the pipe 41 and a plurality of flanges 411 on the ring element engaging the pipe (Figure 2). The end cover has fixing pins 61 and is a press fit into the container open end. A stop block 7 fits into a grooved lower opening 63 in the cover to fix the valve body in position in recess 63, flange stops 721, 722 and 723 on the block gripping the pipe 41, the valve body and the ring element (Figure 2).

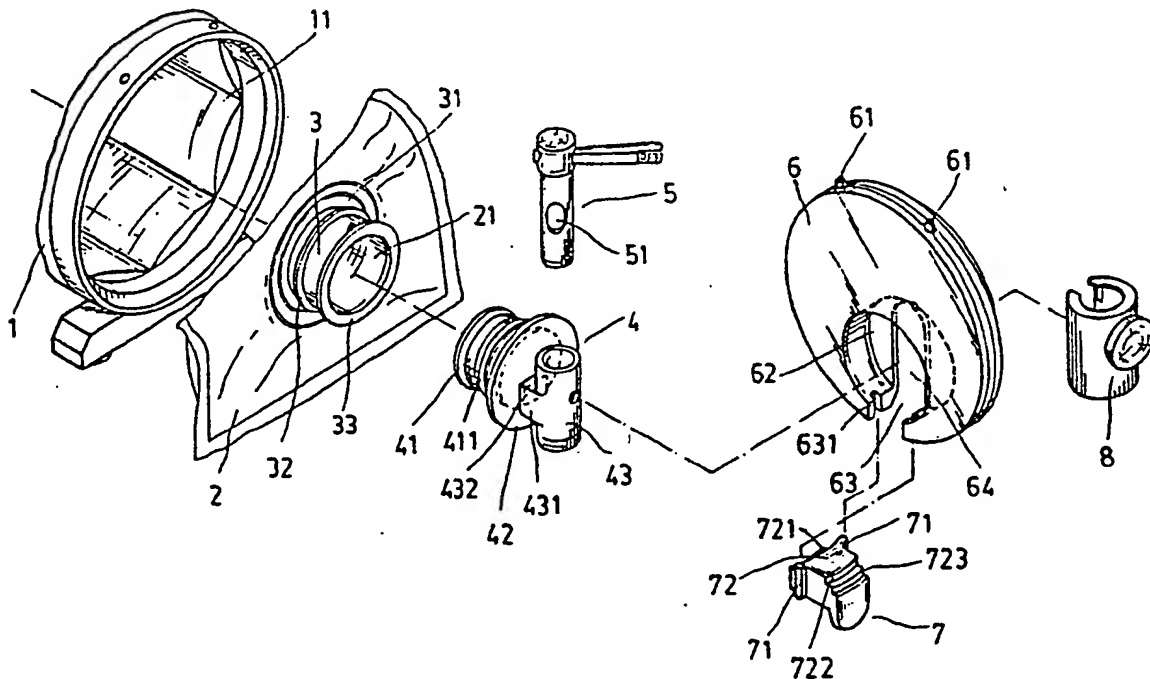


Fig.1

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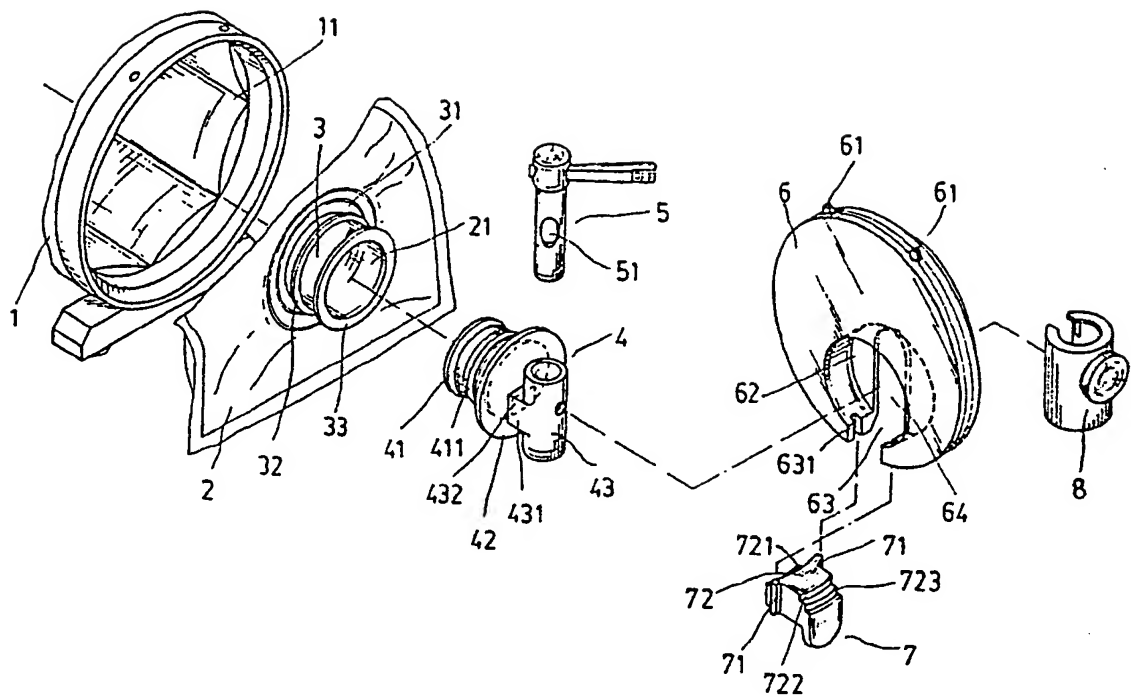


Fig.1

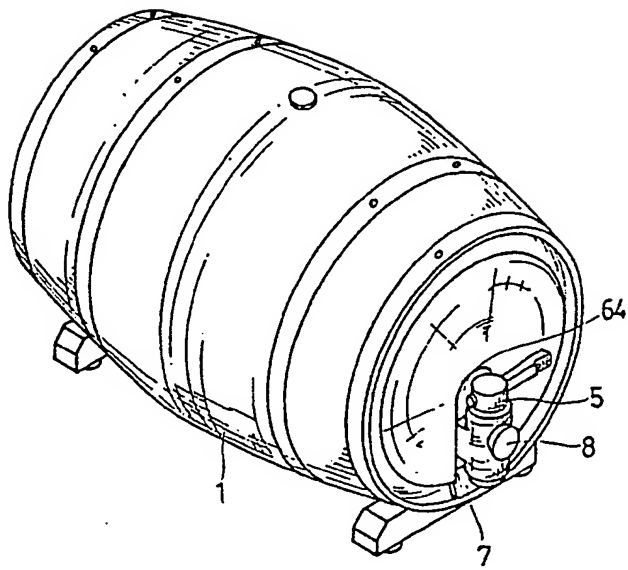


Fig3

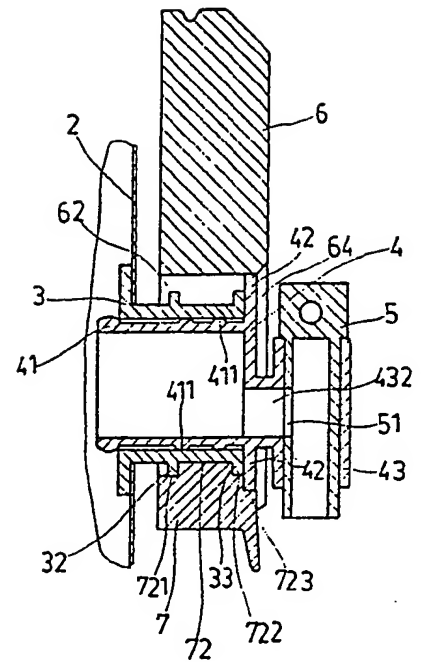


Fig2

LIQUID CONTAINER

The present invention relates to an improved container structure, more particularly to a wooden wine container suitable for storing and retailing wine. The present invention is based on the incorporation of a water-tight bag within a structure providing a positive and secure connection between the bag and valve means on a cover body to provide an air-tight enclosure which can permit easy filling and assembly and ability to maintain freshness and quality of liquid held therein.

Generally, wine is stored in wooden drums and kept in cellars for aging under particular environmental conditions. Such drums incorporate a valve for discharge or bottling. Wine consumers generally have a common perception that quality wine is stored in wooden drums. Drums are often used to denote or portray quality wines and small wooden drums are frequently used in sale promotions and advertising.

However, in practice, wooden drums may suffer from the following defects.

(1) Wine quality can be adversely affected by residual wooden dust. If new wooden drums are used, residual wooden dust in the drum may affect wine quality and may have some effect upon the health of the consumer.

(2) Wooden drums may absorb wine flavour. The wine flavour may be absorbed by wood fibres of the drum, and dispersed through the drum wall. Quality can be significantly affected.

(3) A valve generally extends directly into the wine, and copper valves may result in copper contamination of the wine.

In view of the above disadvantages the present invention has been devised which is based upon an improved drum structure using a water-tight bag made of aluminium foil to isolate the wine from the container wall, and has a

tight connection, such as a positive and rigid connection, between the bag and a valve on a cover body that permits easy filling and assembly.

Therefore, the present invention seeks to provide an improved container structure, particularly an improved wooden drum structure which can prevent direct contact between wine and container wall to maintain wine quality.

Another objective of the present invention is to provide an improved container structure with a unique structure to permit easy filling and assembly.

According to this invention there is provided a container structure comprising: a container body having an opening; a cover body to cover the opening of the container body; a water-tight bag which can be placed within the container body, having an opening connected to a ring element of a predetermined size; a valve body, having a pipe at a rear part thereof to communicate with said bag opening via the connecting ring element, a valve at a front part communicating with said pipe, and a plurality of flanges at the outer circumference of the ring element engaging said pipe; a space at a lower part of the cover body for locating a junction between the pipe and the ring element, and a lateral opening having a groove and a hole at a part of the cover body for holding a front portion of the valve for discharging liquid from said bag; and a stop block having a guiding rib at a lateral side to engage a groove in the cover body, and a stop element at the front side located in the region of an outer flange of the pipe and the ring element so that the valve can be fixed by seizing the flange after insertion of the stop block.

In order that the invention may be illustrated and readily carried into effect, a preferred embodiment of a liquid container structure according to the present invention is described by way of example only with reference to the accompanying drawings, in which:

Fig. 1 is a perspective fragmentary view of a wine

container,

Fig. 2 is a partial cross-sectional view of the assembled container of Figure 1, and

Fig. 3 is a perspective exterior view of the assembled wine container.

As shown in Fig. 1, the present invention provides a wooden container body 1 in the form of a drum with an opening 11 defined by a rim at the front side; a water-tight bag 2 made of aluminium foil with an opening 21 at its front face leading to the interior; a connecting ring element 3 having a rear flange 31 to secure the ring element 3 to the opening 21 through a connection with the aluminium foil surrounding the opening 21; a stop flange 32 in the middle of the outer wall of the ring element 3 and a stop flange 33 around the front circumference of the ring element 3. A valve body 4 is provided communicating with a pipe 41 at the rear part thereof, two flanges 411 at the outer circumference of the pipe and a stop flange 42 at the front end of the pipe, a generally elongate sleeve 43 at the front side of the valve body 4, with a communicating channel 432 in the junction between the sleeve 43 and the pipe 41, as shown in Fig. 2, to connect to the pipe 41 and the sleeve 43. A hollow valve stem 5 having an operating tap at its upper end and a valve aperture 51 at its lower end is located within the sleeve 43. A cover body 6 having a pair of fixing pins 61 on the top is included which has a circular recess 62 in its front surface, an opening 63 in the rim of said cover, grooves 631 in each lateral side of the opening 63 and an elongate slot 64 having an open end connected to and aligned with the opening 63 in said rim. For insertion into said opening 63 a stop block 7 is provided with a guiding rib 71 at each lateral side and a curved stop element 72 having three stop portions, respectively a lower flange stop 721, an upper flange stop 722 and an outermost flange stop 723.

Figure 2 shows a partial cross-sectional view of a

valve attachment for assembly of a wine container according to the present invention. The valve stem 5 is rotatably mounted in the sleeve 43 to complete the valve body 4 whereby valve aperture 51 can be aligned with the communicating channel at a certain position to fill liquid into the water-tight bag 2 through the opening 21, the pipe 41 of the valve body 4 then being connected to the ring element 3 whereby the pipe 41 is securely affixed to the ring element 3 by two flanges 411 thus forming a tightly enclosed container holding liquid. The valve portion, i.e. the valve stem 5 and sleeve 43, of the valve body 4 is inserted to pass through the elongate slot 64 of the cover body 6 whereby the pipe 41 and the ring element 3 are located within the recess 62 which has a diameter approximately equal to the flange 42 of the pipe 41 to provide a means of tightening. The stop block 7 is then inserted into the opening 63 with the guiding ribs 71 located within grooves 631 until the lower flange stop 721, upper flange stop 722 and outermost flange 723 of the stop element 72 reach the stop flanges 32, 33 and 42 respectively to seize the pipe 41 of the valve body 4 and the ring element 3 to secure the enclosed liquid-containing unit on the cover body 6. The water-tight bag 2 is placed into the container body 1, and the cover body 6 with its two fixing pins 61 already located in apertures in the inner edge of the rim defining opening 11, is finally press-fitted onto the opening 11 to complete the assembly.

The present invention may utilise a water-tight bag made of aluminium foil to maintain freshness of liquid, and can provide an air-tight connection between the bag and the valve on the cover body. Unlike conventional wine containers which have a valve installed directly on the cover body, the present invention has the following advantages (1) wine drums and other containers can maintain freshness and quality of liquid by using a water-tight bag prevented from directly contacting the storage container

wall,

(2) It is easy to fill, assemble and secure the container. A positively tightened connection from the bag opening i.e. the ring element, to the valve body is obtained, the connection being held in place by a stop block and the cover body can be fixed to the opening of the container by a simple press fitting. The entire filling, assembly and fixing process can be facilitated.

CLAIMS:

1. A container structure comprising:
 a container body having an opening;
 a cover body to cover the opening of the container body;
 a water-tight bag which can be placed within the container body, having an opening connected to a ring element of a predetermined size;
 a valve body, having a pipe at a rear part thereof to communicate with said bag opening via the connecting ring element, a valve at a front part communicating with said pipe, and a plurality of flanges at the outer circumference of the ring element engaging said pipe;
 a space at a lower part of the cover body for locating a junction between the pipe and the ring element, and a lateral opening having a groove and a hole at a part of the cover body for holding a front portion of the valve for discharging liquid from said bag; and
 a stop block having a guiding rib at a lateral side to engage a groove in the cover body, and a stop element at the front side located in the region of an outer flange of the pipe and the ring element so that the valve can be fixed by seizing the flange after insertion of the stop block.
2. A container structure as claimed in claim 1 wherein the connecting ring element of the water-tight bag and the pipe of the valve body are connected in communication through a coupling.
3. A container structure as claimed in claim 1 or 2 substantially as herein described.

4. A container structure substantially as herein described with reference to and as illustrated in any of the accompanying drawings.